On Greek Illusions: A Semantic Account of Alexopoulou's Generalization*

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1 Introduction

Alexopoulou (2008) argues that Greek provides new evidence for the concept of binding illusions that was hypothesized by Fox and Sauerland (1996). Of special interest from my perspective is Alexopoulou's argument that binding illusions arise not only with existential and universal quantifiers, but also with negative and interrogative quantifiers. The purpose of this note is to speculate on how to account for these kinds of binding illusions semantically building on Alexopoulou's argument.

In the following I refer to Alexopoulou's (2008) paper as BIRG (*Binding Illusions and Resumption in Greek*) and to Clitic Left-Dislocation as *CLLD*. BIRG's argument is based on the generalization concerning CLLD in Greek. Generally, a left-dislocated noun phrase cannot bind a pronoun in its clause in Greek.

(1) (Alexopoulou, 2008, (2))

a. *Kanena fititi dhen ton idha sto parti
no-ACC student-ACC not him saw-1SG at-the party

b. *Pion ton idhes sto parti
who-ACC saw-2SG at-the party

But, CLLD is possible in two cases in Greek. The first are non-quantificational noun phrases like proper names in (2-a), definites, and specific indefinites as in (2-c).

(2) a. (Alexopoulou, 2008, (1a))
To Yani ton idha sto party.
the Yani-ACC him saw-1SG at-the party
'I met Yanis at the party.'

b. (Alexopoulou, 2008, (38a))
ena arthro tu Chomsky to diavase kathe fititis
an article the-GEN Chomsky it read-3SG every student-NOM

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'Every student read an article by Chomsky.' (a ≫ every, *every ≫ a)

To account for this exception one can appeal to the distinction between coreference and binding of Reinhart (1983): The example in (2) can involve coreference and therefore fit into the generalization the binding is impossible.

The second case of grammatical CLLD are generic sentences where even quantifiers can occur. (3) shows an example with a universal.

(3) Kathe dhiatrivi ti dhiavazume pada me megali prosohi
each dissertation it read-1PL always with big attention
(BIRG, (8-c))

'We always read each dissertation with great attention.'

Also negative quantifiers are possible in generic sentences with CLLD:

(4) Kanena dhen ton apoliun etsi (BIRG, (8-a))
noone-ACC not him fire-3PL like-this
'You fire noone like this.'

And finally, even questions are possible with an interrogative quantifier undergoing CLLD:

(5) Pion ton apoliun etsi (BIRG, (8-d))
who-ACC him fire-3PL like-this
'Who do you fire like this?'

BIRG proposes to account for all three cases as binding illusions. The intuition underlying this proposal is the following: Assume a representation like (6) where both the quantifier and the pronoun are in the scope of a generic quantifier. Then, the quantifier can be trivialized by the restriction to a particular situation – specifically, a universal quantifier would be trivialized in a situation that contains only one individual satisfying its restriction. The pronoun can then be coreferential with the trivialized quantifier.

(6) GEN_e [Quant(e) ... pro(e) ...]

As far as I can see, the conclusion that we are looking at binding illusions is essentially correct and will assume so in following. The question, I address in the following are the consequences of this discovery for the semantics of binding illusions. Of the three quantifiers that allow binding illusions in Greek, only the semantic account for universal quantifiers is available (Fox and Sauerland, 1996). For negative and interrogative quantifiers, no semantic account is available. But the Greek facts necessitate that we look for one, and the following speculation has that goal.

In this note, I suggest first to analyze CLLD noun phrases as aboutness topics with a semantics that requires there to be a unique maximal situation that is about the dislocated noun phrase in episodic sentences. This uniqueness requirement derives the restriction of CLLD to non-quantificational NPs in episodic sentences. In generic sentences, I assume that there is quantification over situations and therefore dislocated noun phrases are not restricted in

the same way. I conclude that the analysis of binding illusions with negative quantifiers requires decomposition of the negative quantifier into negation and an indefinite. Furthermore, the analysis of binding illusions for interrogative quantifiers follows directly.

2 Universals and Aboutness

My goal is to construct a set of semantic hypotheses that can account for the Greek data. I start with making the account of binding illusions with universals more precise. One question left open by the account in BIRG is how the left-dislocated quantifiers enter the semantics of the clause. I will assume that there is a relation ABOUT between situations and individuals that entails that the individual is the most salient individual in the situation:

(7) s ABOUT x entails that $x \sqsubseteq s$ and for all $y \sqsubseteq s$: x is more salient than y

Furthermore, I assume that salience is a partial order of individuals. Then for any situation s there is at most one individual x such that s is about x.

Consider CLLD in example (8) (repeated from (2-a)). I assume that the topic is interpreted as a definite description of a situation as shown in (9).[1]

(8) To Yani ton idha sto party.
the Yani-ACC him saw-1SG at-the party
'I met Yanis at the party.'

(9) the_s [λs . s ABOUT Yanis] [λs . I met the Yanis in s at the party]

The definite description selects the situation that contains Yanis and all less salient individuals (possible up to some limit on situation size as discussed below).

For universals, the semantics of ABOUT makes a desirable prediction. Consider the abstract example in (10), which according to the discussion in BIRG should be ungrammatical in Greek with CLLD.

(10) *Every student, she fired him like that. (PSEUDOGREEK[2])

The logical form representation of (10) is shown in (11). I assume that the quantifier *every student* takes scope within the topic phrase, but cannot take scope higher up.[3] Representation (11) is not interpretable if there is more than one student because it requires that there be a situation s where each student

[1] The definite $\textit{the}_s$ has the usual semantics of definites: It presupposes the existence of a unique, maximal situation satisfying its restrictor and then denotes this situation.

[2] In the following, I use a paradigm of abstract examples to focus on the semantic analysis of Greek CLLD. Dora Alexopoulou (p.c.) points out to me that not all of the examples of my '*Pseudogreek*' actually translate straightforwardly into actual Greek. Especially, for the binding illusion effect, examples with impersonal subjects give the clearest judgments. Nevertheless it seems useful to me to abstract away for these effects for the time being.

[3] A representation with wider scope for the universal is shown in (i). This should be interpretable if the referent of *she* is less salient than each of the students. I assume that (i) violates the syntactic locality requirement of quantifier raising.

(i) [every student in s] [λx . the_s [λs . s ABOUT x] [λs . she fired the student in s like that]]

in s is the unique most salient part of s. I assume that (10) is ungrammatical in Greek for this reason.

(11) the_s [λs . [every student in s] [λx . s ABOUT x]] [λs . she fired the student in s like that]

BIRG argues that generic sentences like (10) are, however, grammatical. Consider again just the English gloss of a hypothetical Greek example:

(12) Every student, she generally fires him like that. (PSEUDOGREEK)

Assume that the topic in (12) is not interpreted as a definite, but using a generic quantifier over situations:

(13) Gen_s [λs . [every student in s] [λx . s ABOUT x]] [λs . she fired the student in s like that]

Representation (13) is assigned an interpretation that requires that she fired each student. This is the desired interpretation.

3 On Illusions with *No*

Negative quantifiers like *no* present additional difficulties. First consider the episodic example (14).

(14) *No student, she fired him like that. (PSEUDOGREEK)

Following the discussion in the previous section, the LF-representation for (14) is (15). The definite description denotes different situation depending on whether the most salient individual is a student or not. If the most salient individual is a student, the definite description selects the maximal situation not containing any of the students. However, then the definite *the student in s* has no referent. This could be reason why examples like (14) are ungrammatical in Greek. But, if the most salient individual is not a student, the definite description selects the maximal situation, i.e. the current world of evaluation, since this situation is not about any of the students, but about the maximally salient individual. Possibly, the total situation is not a good situation to be introduced by left dislocated material since it is the default evaluation situation. If this is the case, we predict (14) to be ungrammatical (or at least semantically odd).

(15) the_s [λs . [no student in s] [λx . s ABOUT x]] [λs . she fired the student in s like that]

Next, consider the generic counterpart of (14) in (16). According to BIRG, real examples like (16) are grammatical in Greek.

(16) No student, she generally fires him like that. (PSEUDOGREEK)

The representation in (17) does not offer a reason why (16) should be grammatical in comparison to (14). If the maximally salient individual is a student, (17) involves generic quantification about student-free situations. If the maximally salient individual is not a student, (17) involves generic quantification

over situations that do not include a student as the most salient individual in them.

(17) Gen_s [λs . [no student in s] [λx . s ABOUT x]] [λs . she fired the student in s like that]

There is reason to believe that (17) should not be a pragmatically well-formed interpretation in either one of these cases. Quantifiers over situation generally require that the situations they quantify over be at least not contained in each other (cf. Kratzer 1989; Percus 2007). This can be build into the semantics of Gen_s as follows:

(18) $[\![\text{Gen}_s]\!](R)(S) = 1$ if and only if for all s that satisfy $R(s) = 1$ and $\neg\exists t(R(t) = 1 and s \sqsubseteq t)$

But, then the Gen_s in (17) is predicted to be equivalent to a definite because it either quantifies only over the current worlds or the maximal student-free situation. Such a redundant use of genericity, we should expect to be odd.

I propose therefore to account for the Greek data by splitting the negative quantifier into a negation and an indefinite (see Zeijlstra 2004 and references there). Then we arrive at the representation in (19) for the episodic sentence:

(19) the_s [λs . [a student in s] [λx . s ABOUT x]] [λs . she didn't fire the student in s like that]

If ABOUT is true of any situation that has x as its most salient part, (19) is predicted to be acceptable. The definite selects the maximal situation containing all the students and all individuals less salient then the maximally salient student. The sentence expresses then that she did not fire the most salient student in a particular way. This would not be the desired result.

However, if we assume that ABOUT is more restrictive the result can differ. For example, we could add the assumption that s ABOUT x entails that s is a convex spatiotemporal region surrounding x. Then, it would not follow any more that the maximal situation ABOUT the most salient student contain all other situation that are about a student. This entails that the uniqueness requirement of the definite cannot be fulfilled. So, it would follow that (14) is odd.

Now, consider the generic representation (20). Since the generic does not require a unique, maximal situation, representation (20) is predicted to be fully acceptable, and receives the desired interpretation.

(20) Gen_s [λs . [a student in s] [λx . s ABOUT x]] [λs . she didn't fire the student in s like that]

Compare this account to the sketch BIRG provides in section 3.2. BIRG notes that a scope illusion exists in English with negative quantifiers in (21). The generic (21-b) seems to allow a reading where *no* takes scope over *a guide* that the episodic (21-a) lacks.

(21) (BIRG, (34))
   a. Yesterday, a guide ensured that no tour to the Louvre was late.
   b. In general, a guide ensures that no tour to the Louvre is late.

In the spirit of scope illusions, BIRG assumes that the generic quantifier must take scope over the negative quantifier. The paraphrase offered in BIRG is the following.

(22) For every relevant situation s, a guide ensures that no tour to the Louvre is late.

BIRG assume that *relevant* situations are those containing one guide and one tour to achieve the desire result. Our analysis here is fully compatible: To make more precise what relevant situations are, we assume that relevant situations are situations that are ABOUT a tour. Then the correct interpretation is predicted in (22). One crucial difference between the scope illusion in (22) and the Greek binding illusions is that in (22) the negative quantifier remains in the scope of the generic quantifier, while in the Greek example it enters the restrictor. For this reason, scope splitting is not necessary in English, but as far as I can see, the analysis of the Greek data requires it.

4 On Illusions with Questions

For questions I again consider a pseudo-Greek pair of examples. The episodic (23) with CLLD is ungrammatical in Greek.

(23) *Which student she fired him like that? (PSEUDOGREEK)

Assume a simplified version of the semantics of questions of Karttunen (1977). For example, the question (24-a) is represented as (24-b) as a set of propositions.

(24) a. Which student did she fire?
b. λp . [$\exists$ [lx . student(x)] [λx . $p = \lambda w$. [she fired x in w]]]

For universal quantifiers, I showed in footnote 3 that the restrictor of the situation quantifier must be a syntactic island. Hence, pied-piping as in (25) should be the only available representation. Since the scope of the definite is the same is in (19) above, (25) is expected to be unacceptable for the same reasons.

(25) λp . [the$_s$ [λs . [a student in s] [λx . s ABOUT x]] [λs . [$p = \lambda w$. [she fired the student in s like that in w]]]]

Now consider the generic which according to BIRG should be an acceptable example of CLLD in Greek.

(26) Which student she generally fires him like that? (PSEUDOGREEK)

If we pied-pipe in the same fashion as in (25), the result is (27).

(27) λp . [Gen$_s$ [λs . [a student in s] [λx . s ABOUT x]] [λs . [$p = \lambda w$. [she fired the student in s like that in w]]]]

This representation is unusual because the generic quantifier intervenes between the formation of a set of propositions and the identity requirement on the propositions. An exact identity requirement between p and the proposi-

tion following it cannot be fulfilled if more than one student exists. But, if we change the semantics of questions to require entailment rather than identity as in (28), the result is the desired one.

(28) λp . [Gen_s [λs . [a student in s] [λx . s ABOUT x]] [λs . [$p \rightarrow \lambda w$. [she fired the student in s like that in w]]]]

The interpretation of (28) can be paraphrased as follows: Tell me something such that I can generally conclude for a situation that is about a student whether she fired the student in a particular way in that situation.

5 Conclusion

In sum, this note has tried to validate the semantic intuition of Alexopoulou (2008) that generic quantification can lead to binding illusions with negative and interrogative quantifiers as well as universals, and did so successfully. Following the interesting discussion of Alexopoulou's Greek data has taken us to the semantics of genericity and aboutness topics. The account I put together can be summarized as follows:

Topics introduce situations that are about certain individuals. The aboutness relation between situations and individuals I have left largely unspecified, but I claimed that at least an individual must be the most salient one in any situation about it and that there must be further limits on the size of the situation. In episodic sentences with a topic, I assumed that there must be a unique situation that they are about. This predicts that generally topichood in episodic sentences is incompatible with quantification.

The effect of genericity in my proposal is largely due to the fact that the uniqueness requirement is not made in generic sentences. Instead, I assume that it is required that generally for situation about the topic a certain state must hold.

The one case where my predictions diverge from Alexopoulou's account are negative quantifiers. My analysis predicts that negative quantifiers will only allow binding illusions when the negative quantifier is decomposed into an indefinite and negation. Negation furthermore must be interpreted in the clause where the pronoun occurs.

Bibliography

Alexopoulou, Dora: 2008, 'Binding illusions and resumption in Greek', in S. Iatridou (ed.), *Proceedings of the Workshop on Greek Syntax and Semantics.* MIT Working Papers in Linguistics, Cambridge, Mass. (this volume).

Fox, Danny and Uli Sauerland: 1996, 'Illusive scope of universal quantifiers', in K. Kusumoto (ed.), *Proceedings of NELS 26*, 71–85. GLSA, Amherst.

Karttunen, Lauri: 1977, 'The syntax and semantics of questions', *Linguistics and Philosophy* **1**, 1–44.

Kratzer, Angelika: 1989, 'An investigation of the lumps of thought', *Linguistics and Philosophy* **12**, 607–653.

Percus, Orin: 2007, 'Pragmatic constraints on adverbial quantification', in U. Sauerland and P. Stateva (eds.), *Presupposition and Implicature in Compositional Semantics*. Palgrave Macmillan, Basingstoke, UK.

Reinhart, Tanya: 1983, 'Coreference and bound anaphora: A restatement of the anaphora questions', *Linguistics and Philosophy* **6**, 47–88.

Zeijlstra, Hedde: 2004, *Sentential Negation and Negative Concord*, Doctoral Dissertation, University of Amsterdam, Amsterdam, Netherlands.